

REMARKS

I. Introduction

In response to the Office Action dated July 25, 2008, claim 1 has been amended. Claims 1-3 and 6-15 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Prior Art Rejections

A. The Office Action Rejections

On page (3) of the Office Action, claims 1-3, 6-8, 10, and 12-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chiba et al., U.S. Patent No. 5,614,660 (Chiba) in view of Morimoto et al., U.S. Patent No. 6,005,643 (Morimoto) and further in view of Takahashi et al., U.S. Patent No. 5,537,528 (Takahashi). On page (6) of the Office Action, claims 9 and 11-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chiba in view of Morimoto and Takahashi, and further in view of Aotake, U.S. Patent No. 6,411,771 (Aotake). On page (8) of the Office Action, claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable over Chiba in view of Morimoto and Takahashi, and further in view of Tonomura et al., U.S. Patent No. 6,571,054 (Tonomura).

Applicant's attorney respectfully traverses these rejections.

B. Applicant's Claimed Invention

Independent claim 1 recites a method of processing a video stream received by a computer, the method comprising:

receiving a video stream, wherein the video stream comprises multiple frames;
analyzing the video stream to identify scene changes between frames of the video stream; and
marking one or more user or private data fields of one or more scene-change frames of the video stream to indicate that a scene change occurs in the scene-change frame, as well as a type of scene change, in a manner transparent for encoded content within the frames, and in order to provide an index of access points for displaying specific scenes or segments.

C. The Chiba Reference

Chiba describes an image data encoding method and device, and an image data reconstructing method. An encoding unit encodes the received image data in frame units. A code buffer stores the amount of codes per 1 frame. The detection condition setting unit sets a detection

condition (a standard value of a code amount difference) specified according to the detection designation data entered externally. A scene determining unit calculates the difference between the amount of codes in the present frame entered from the code buffer and the amount of codes in the previous frame. If the difference is larger than the detection condition (the standard value of the code amount difference), the scene determining unit issues a COS code indicating a scene-changed frame and sets a selection signal in an active state. A switch adds the COS code to the encoded data in the present frame and externally outputs it when the selection signal indicates an active state.

D. The Morimoto Reference

Morimoto describes data hiding and extraction methods. It is also a method for embedding additional information into a video movie without substantially having an influence on the compression efficiency of the video movie and also without substantially causing degradation of the picture quality. Particularly, the method of the present invention involves specifying at least one embedding region in the frame of the video movie for embedding information, and determining a type of interframe prediction of the embedding region in correspondence with information to be embedded by referring to an embedding rule where a content of data to be embedded is caused to correspond to the type of interframe prediction of the embedding region. It is desirable that the frame in which the embedding region exists is a bidirectionally predictive-coded frame.

E. The Takahashi Reference

Takahashi describes a scene information editor that extracts, for a plurality of scenes, still image data on the representative frames of scenes from a representative frame file, and arranges the still images along with a time axis and in chronological order along a time axis for display on the screen of a display. For the time period corresponding to the part of the time axis specified by a user, the editor extracts motion image data from an LD and displays the motion image data on a TV monitor. The scene information editor also extracts the information given to those scenes from a scene information file and graphically displays the information on the screen of the display at the same time. When the user inputs an edit command, the scene information editor executes it for the edit scene information file.

F. The Aotake Reference

Aotake describes an MPEG1 real time encoder board that generates index data as an evaluation value representing the complexity of a picture. A scene change parameter representing the degree of a scene change occurring in the picture is then calculated from the index data. The scene change parameter is associated with a scene change pointer, that is, position information on a location of the picture in which a scene change occurs to a degree indicated by the scene change parameter. The scene change parameter and the scene change pointer are recorded as an index in an index file. On the other hand, an MPEG system stream output by the MPEG1 real time encoder board is stored in an MPEG file separated from the index file.

G. The Tonomura Reference

Tonomura describes an invention in the creation of an electronic image book provided with a book-type interface; a video is analyzed; images are extracted from the video under predetermined event type conditions; the extracted images are stored as index information in an index management table; images are selected from the index management table under desired conditions and laid out as a sequence of representative images in a page screen; item numbers of the laid out representative images, information about their positions on the page and information about a video file linked to the representative images are recorded in a page management table in correspondence with pages; and at the same time, representative image data corresponding to the item number is recorded in an image data table.

H. The Applicant's Claims Are Patentable Over The References

Applicant's invention, as recited in independent claim 1, is patentable over the references, because the claim recites a specific combination of limitations not found in the references.

The Office Action, however, asserts that Chiba, Morimoto and Takahashi, when combined, teach all the elements of claims 1-3, 6-8, 10 and 12-14. In addition, the Office Action asserts that Chiba, Morimoto, Takahashi and Aotake, when combined, teach all the elements of claims 9 and 11-13. Finally, the Office Action asserts that Chiba, Morimoto, Takahashi and Tonomura, when combined, teach all the elements of claim 15.

Applicant's attorney disagrees.

The references, taken individually or in combination, do not teach or suggest the limitations of Applicant's independent claims directed to "marking one or more user or private data fields of one

or more scene-change frames of the video stream to indicate that a scene change occurs in the scene-change frame, as well as a type of scene change, in a manner transparent for encoded content within the frames, and in order to provide an index of access points for displaying specific scenes or segments.”

The Office Action, on the other hand, asserts that Chiba, Morimoto and Takahashi, when combined, do teach all the limitations of Applicant’s independent claims.

Specifically, the Office Action asserts that Chiba discloses the limitations of receiving a video stream, wherein the video stream comprises multiple frames (Chiba: Fig. 9), analyzing the video stream to identify scene changes between frames (Chiba: Figs. 9, 11, 14 and/or 18), and marking with respect to the field or frames of the video stream (Chiba: Figs. 20 and 41A-B, and col. 17, lines 20-36). The Office Action also asserts that Chiba creates an index of access points to identify scene changes within a video stream, and marking fields of frames of a video frame to indicate a scene change, wherein the user or private fields are stored separately from the encoded content within the frames (Chiba: col. 21, Figs. 25 and 29A-B), but fails to disclose a method processed by a computer. In addition, the Office Action asserts that Morimoto teaches processing video in MPEG format associated with CD-ROM media by a computer platform (Morimoto: col. 1 and col. 4, lines 39-49). Finally, the Office Action asserts that Takahashi teaches detection of scene change types, including normal and dissolve types (Takahashi: type field 904 in Fig. 9, and cols. 9-10).

Applicant’s attorney respectfully disagrees with this analysis.

Applicant’s attorney asserts that the combination of Chiba, Morimoto and Takahashi does not describe marking one or more user or private data fields of one or more scene-change frames of the video stream to indicate that a scene change occurs in the scene-change frame, as well as a type of scene change, in a manner transparent for encoded content within the frames, and in order to provide an index of access points for displaying specific scenes or segments.

Instead, the combination of Chiba, Morimoto and Takahashi would suggest a system of appending a data structure listing the number of changed scenes with each of the scene-changed frame numbers at the end of a data stream (Chiba), hiding additional information, either within a user data field or within the content itself, in manner that does not cause substantial degradation of picture quality (Morimoto), and creating a scene change information file, separate from the video stream, having a field that stores “1” for normal and “2” for dissolve, wherein the scene change information file is then used by a scene information editor (Takahashi).

Specifically, Applicant’s attorney notes the following:

- In Chiba, the scene change data shown in Fig. 25 is appended at the end of the data stream, but the fields of the scene-change frames themselves are not marked to indicate the scene change. Moreover, the scene change data shown in Fig. 25 of Chiba merely identifies the number of changed scenes and the scene-change frame number, but not the type of scene change.
- In Morimoto, additional information can be placed in a user data field of an MPEG video bit stream, but this additional information does not indicate a scene change or type of scene change.
- Also in Morimoto, additional information may be embedded into a motion image compressed by employing interframe prediction, in a manner that ensures there will be almost no degradation in picture quality, and that makes it difficult to remove embedded information from a motion image. Again, this additional information relates does not indicate a scene change and a type of scene change.
- Indeed, Morimoto does not mark scene-change frames, and specifically avoids embedding information in scene-change frames, because of the degradation in picture quality that results.
- In Takahashi, a scene change information file separate from the video stream is provided for use by the scene information editor, wherein the scene change information file stores a value indicating whether a "normal" or "dissolve" scene change has occurred. However, Takahashi fails to mark fields of the frames in the video stream to indicate the scene change.

Consequently, even when combined, Chiba, Morimoto and Takahashi do not teach or suggest marking one or more user or private data fields of one or more scene-change frames of the video stream to indicate that a scene change occurs in the scene-change frame, as well as a type of scene change, in a manner transparent for encoded content within the frames, and in order to provide an index of access points for displaying specific scenes or segments.

The remaining references, Aotake and Tonomura, do not overcome the deficiencies of the combination of Chiba, Morimoto and Takahashi. Recall that Aotake and Tonomura were cited only against dependent claims 9, 11-13 and 15, and only for teaching an attribute representing the amount a scene has changed in relation to the corresponding scene change point, and the creation of an electronic book by analyzing a video sequence.

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In summary, the various elements of Applicant's claimed invention together provide operational advantages over Chiba, Morimoto, Takahashi, Aotake and Tonomura. In addition, Applicant's invention solves problems not recognized by Chiba, Morimoto, Takahashi, Aotake and Tonomura.

Thus, Applicants' attorney submits that independent claim 1 is allowable over Chiba, Morimoto, Takahashi, Aotake and Tonomura. Further, dependent claims 2-3 and 6-15 are submitted to be allowable over Chiba, Morimoto, Takahashi, Aotake and Tonomura in the same manner, because they are dependent on independent claim 1, and thus contain all the limitations of the independent claim. In addition, dependent claims 2-3 and 6-15 recite additional novel elements not shown by Chiba, Morimoto, Takahashi, Aotake and Tonomura.

III. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited.

Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicant's undersigned attorney.

Respectfully submitted,

GATES & COOPER LLP
Attorneys for Applicant

Howard Hughes Center
6701 Center Drive West, Suite 1050
Los Angeles, California 90045
(310) 641-8797

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GHG/

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By: 

Name: George H. Gates

Reg. No.: 33,500